

REMARKS

Claims 1-21 are currently pending in the above-referenced patent application. No new matter is introduced herein.

Objections to the Specification

The Examiner objected to the specification because, in the Examiner's experience, "the statement 'said (a) power peak corresponding to the fundamental frequency of a vowel' is not true, since a power peak only indicates one of harmonics and normally not the fundamental frequency." Applicants have amended the specification at page 6, lines 31-32 to delete the phrase "said power peak corresponding to the fundamental frequency of a vowel." The remainder of the paragraph at page 6, lines 29-34 is supported by the attached pages, which explain that Fast Fourier Transform (FFT) may be used to detect a power peak, that consonants typically lack a fundamental frequency and harmonics and that power peaks may correspond to the fundamental frequency and harmonics of a signal.

Claim Rejections – 35 U.S.C. § 112, first paragraph (enablement)

Claims 3, 4, 14 and 15 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. In particular, the Examiner argues that the element "mixer is further [configured] to replace the fundamental frequency of the speech signal by the fundamental frequency associated with a note of the music signal" lacks enablement to one of ordinary skill in the art based on the disclosure of the specification...." The Examiner sets forth

three reasons for why the Examiner believes the above referenced claim language is not enabled, each of which is addressed individually, and in combination, below.

First Reason

With respect to the first reason, the Examiner states in part:

The examiner has no disagreement that there is common technique (i.e. well known art) used in the art for the extraction [of] the fundamental frequency via FFT. The problem is that the applicant **expressly** says the **incorrect** statement in the specification, so that the examiner has reasonable doubt and responsibility to challenge enablement of the claimed invention.

As described above, the specification has been amended, and support has been provided for the remaining portions of the disclosure of page 6, lines 29-34. Accordingly, the first reason is now moot.

Further, “[a] specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.” MPEP 2164.04 (emphasis added). Also, “[t]he specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public.” MPEP § 2164.05(b). Applicants do not need to rely on the disclosure at page 6, lines 29-34 for

enablement at least because, as the Examiner acknowledges, there are common techniques for extraction of fundamental frequency (including via FFT). Accordingly, the first reason is overcome because detecting fundamental frequency is enabled by the common techniques, which are not required to be disclosed in Applicants' specification.

Second Reason

With respect to the second reason, the Examiner provides reasons why he believes that it would not be easy to replace one frequency with another frequency and clarifies: "It [] should be clear that this enablement issue is related to the invention's objective that is aimed to offer some meaningful service (i.e. in light of the specification: page 2, lines 20-23), not whatever mixed junk sound [is] produced)." See Office Action page 5, lines 3-5 (emphasis removed).

"[T]o comply with 35 U.S.C. 112, first paragraph, it is not necessary to 'enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect.'" Claims 3, 4, 14 and 15 do not include any limitation requiring "a perfected, commercially viable embodiment." Indeed, the Examiner notes that what is claimed in these claims is "a simple replacement of one frequency with another." Accordingly, because the second

reason is related to enablement with respect to a specific objective that is not required by the claims, the second reason is overcome.

The Examiner also has not established that undue experimentation is necessary in order to replace one fundamental frequency with another. In this regard, the Examiner provides reasons why he believes that “the replacement cannot be easily implemented” and that “the replacement, in actual and practical application, involves much more complicated alignments of fundamental frequency itself and its harmonics than just a simple replacement of one frequency with another.” While such replacement may not be, in the Examiner’s opinion, easy and may require more complicated alignments, this only establishes the Examiner’s belief that *some* experimentation is required, but not that that experimentation is *undue*.

Third Reason

The Examiner asserts that “the claim limitation (replacing frequency) conflicts with the specification disclosure that states ‘a proportion Y% of a musical sinusoidal signal deduced from the signal S2 is substituted for a proportion X% of the speech sinusoidal signal’ In this case, the replacing frequency conflicts

with replacing percentage of the sinusoidal signal because they cannot be compatible.”

As previously pointed out, there is no requirement that every sentence in the written description enable, or even support, every claim limitation. The Examiner does not allege that the above referenced claim limitation is not enabled at all, but only that the Examiner believes it conflicts with one sentence in the specification.

The Examiner apparently takes a different view of 35 U.S.C. § 112, first paragraph. Here, the Examiner argues that “if there is a claimed limitation that is not supported by the specification for enablement requirement, the claim, as a whole, cannot be considered to meet [the] enablement requirement of 35 U.S.C. § 112, 1st.” However, the Examiner’s third reason is not directed to whether a claim limitation lacks support for enablement, but to the Examiner’s belief that one sentence in the specification conflicts with the claim language. Thus, the Examiner’s response to Applicants’ arguments with respect to the third reason is not responsive to Applicants arguments.

Applicants acknowledge the Examiner’s argument that “the examiner’s enablement rejection is based on a consideration of the combined aspects as stated in the rejection....” However, none of the three reasons provided in support of the

enablement rejection is valid, as set forth above. Accordingly, even reading all three of the reasons in combination, the enablement rejection is overcome.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, first paragraph, rejection of claims 3, 4, 14 and 15.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-7 and 10 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate et al. (U.S. Patent No. 5,641,927) and Boss et al. (U.S. Patent No. 5,915,237). Claim 8 stands rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Kageyama et al. (U.S. Patent No. 5,857,171). Claim 9 stands rejected under 36 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Kageyama et al. (U.S. Patent No. 5,712,437) ("Kageyama II"). Claims 11-18 and 21 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of Pawate, Boss and Taniguchi et al. (U.S. Patent No. 5,712,437). Applicants respectfully submit, however, that these claims are patentable over the cited references for at least the reasons set forth below.

Claim 1 recites, in part:

...a receiving unit configured to receive an analog speech signal,

a converter configured to convert said analog speech signal into a digital speech signal comprising at least one speech signal fundamental frequency,

a storage unit configured to store a set of coded data representing a musical score comprising a set of notes, each note being

defined by a fundamental frequency, a duration, and an instrument that plays said note,

an extracting unit configured to extract a digital music signal from said set of coded data, and

a mixer configured to combine a first portion of said digital speech signal and a first portion of said digital music signal to produce a combined digital signal.

(Emphasis added).

With respect to the feature of “a converter configured to convert said analog speech signal into a digital speech signal comprising at least one speech signal fundamental frequency,” the Examiner argues that Pawate FIG. 2, which shows a microphone and a pitch estimator 23, discloses this feature of claim 1. At least because Pawate discloses that the pitch is estimated from the artist’s vocal and not that the artist’s vocal is converted into a pitch, Pawate does not disclose this feature of Applicants’ claim 1.

With respect to the feature of “an extracting unit configured to extract a digital music signal from said set of coded data,” the Examiner argues:

...“extracting a digital music signal from said set of coded data” (col. 2, lines 54-67, ‘the pitch estimated and averaged from the original artist’s voice (musical signal), or key (corresponding to pitch) from the background music or that from the CD data field is compared (necessarily extracting music from the related data)’)...

It appears that the Examiner is arguing that in Pawate, the pitch/key is extracted from the CD and that this extraction corresponds to Applicants’

extracting a digital music signal from the set of coded data. However, the Examiner argued on page 10, lines 1-3 of the Office Action that Pawate's pitch corresponded to Applicants' digital speech signal comprising at least one fundamental frequency. Thus, it appears that the Examiner is arguing that Applicants' "storing" and "extracting steps" equate to storing a pitch on a CD and then extracting the pitch from the CD. However, Applicants' claim 1 recites "storing a set of coded data" and "extracting a digital music signal from the set of coded data." (Emphasis added).

Accordingly, the Examiner has not established a prima facie case of obviousness. Neither Pawate, nor Boss, nor Kageyana, nor Kageyana II, nor Taniguchi, nor any combination thereof, disclose or suggest all features of Applicants' claim 1. Accordingly, claim 1 is patentable over the cited references.

The Examiner has not addressed any of Applicants' arguments with respect to the § 103(a) rejection in his response to arguments or provided a new reference that discloses these features. Applicants respectfully request that the Examiner either provide reasons why he believes that the "estimator" in Pawate "converts" an analog speech signal into a digital speech signal and why he believes that storing a pitch on a CD and then extracting the pitch from the CD is the same as "storing a set of coded data" and "extracting a digital music signal from the set of coded data," provide a new reference that discloses these features or withdraw the rejection.

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Claim 11 includes features similar to claim 1 and is, therefore, patentable over the cited references for at least the same reasons set forth above with respect to claim 1.

Claims 2-10 include all features of claim 1 from which they depend, and claims 12-21 include all features of claim 11 from which they depend. Thus, these claims are also patentable over the cited references of record for at least the reasons set forth above.

Based at least on the arguments set forth above, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-21.

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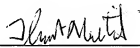
Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-21, is in condition for allowance and respectfully request a notice to that effect.

Respectfully submitted,

Fourquin et al.

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